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A

DISCOURSE

ON THE

Preparation, Preservation, and Restoration

OF

MALT-LIQUORS,

With the Common and Special USES of

Barley, Wort, Grains, &c.

AND

Of all the Liquors extracted from Malt, *viz.* Ale, Beer, Aligar, and Spirits, with a rational Account of each Process, or Head.

By *P. C. J. P.*

Prædicant aliæ Regiones sua Dona, neque immeritò, cur non & nos nostra commendemus, cum ea a quibusdam injustè vituperari, & tanquam parum utilia rejici, non ignoremus? Æolian. Hess.

LONDON:

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LONDON:

THE PREFACE.

THE *Author of the* Vinum Britannicum, *having given the World an Account of the Antiquities, Properties, Effects, Differences, and Usefulness of Malt-Liquors to human Bodies; especially of their Agreeableness to robust and healthy Constitutions, and in particular to the vulgar and mechanic Part of this Nation, when the Liquors are rightly made, and discreetly and moderately us'd, we might reasonably have expected, that the Thread of his Discourse shou'd have led him to give us, not only that judicious Preparation, which makes them so wholsome and useful, with the Reason of the Effect of each Operation; and to have detected some of these Fallacies us'd by the*

Makers and Retailers; which often make their Uſes to be attended with dangerous and fatal Conſequences; and how we might diſcover the Nature of the Ingredients us'd in the Deceit; and the Prevention or Cure of theſe Inconveniences, ſo as Men might either know whom to truſt, or how to drink with more Safety. But to have oblig'd us with the Nature and Properties of Vinegar and Spirits, ſeeing they are the Product of Malt. And how to accommodate Ale and Beer, not only to the ſundry Taſtes, but different Conſtitutions and Caſes of Mankind; but when he has rais'd our Attention and Expectation, he ſuddenly breaks off, and leaves us in the Dark as to them; which Defects to ſupply, is the Intention of this Diſcourſe: It's true, ſome Parts of it are borrow'd from Wolridge, Markam's *Works, and the philoſophical Tranſactions, of Dr.* Boerhaave, *&c. but all theſe make not up a fifth Part. If my Attempt be uſeful and ſatisfactory, I have my End; if not, I am not the firſt that has fail'd in their Deſire and good Wiſhes.*

A DISCOURSE ON THE *Preparation, &c.* OF MALT-LIQUORS.

CHAP. I.

Of the Kinds of Grain proper for Malt.

SEEING the Earth brings forth not only Plenty, but Variety of Fruits, which muſt be prepared different Ways for our Meat and Drink, and the laſt

laſt muſt be obtained from the Fruit and Grain by various Preparations; and the Liquor, which is the preſent Subject of our Diſcourſe, is made by a double Fermentation, *viz.* one of the Grain, another of the Liquor; it's neceſſary we ſhou'd know what Kinds of Grain will anſwer our Purpoſe, and ſuch are all thoſe, which being fully ripe and dry, are reducible to a fine Meal or Flour, by grinding; as Wheat, Barley, Oats, Rice, Bucketti, Peas, Beans, Millet, Chick-Peas, Heath-Peas, Haſlenuts, Cheſnuts, Walnuts, Filberts, Coconuts, Lupins, *&c.* Theſe, and ſeveral more of the mealy Seeds, which may be eaſily dry'd and ground to Flour, may be fermented and made into Malt, as well as Wheat, Oats, or Barley, and after the ſame Manner; but if the Seeds are very oily, they muſt firſt be ſtript of their redundant Oil, and dry'd before they can be fermented.

That part of the Plant fit for Malt, is only the Seeds of mealy Vegetables, becauſe they abound with a Juice, which is only one eſſential Oil, provided for the Defence of the *Embrio* and Preſervation

ſervation of it from Corruption : Hence it is, that ſome Seeds lie half a Century in the Earth unrotten, and when the Ground is plow'd or digg'd up, they ſpring and vegetate, as the Seeds of Broom, Mouſear, *&c.* But were they deſtitute or ſtript of this fine Oil, it were impoſſible for them to outlive a Month in the Earth.

When we have made choice of our Grain (which is chiefly Barley in *England*) we muſt conſider ſome Requiſites neceſſary to its being made into good Malt; as, 1. That it have a favourable Seaſon for its Growth; for if the Seaſon happen to be very rainy, the great Wet has waſh'd and diſſolv'd the Salts of the Earth (which ſhou'd have ſaturated the Grain) from the Surface, and either carry'd them off with the Currents of Waters, or ſunk them below the Roots of the Corn, which prevents their riſing up into the Stalk and Ear. —— If the Seaſon was cold, the Sun's Heat was weak and inſufficient, had not Force enough to rarify the fine Oil and Salts of the Earth, ſo as they might riſe to its Surface in Plenty, but remain'd

main'd more condens'd and lock'd up in the Ground, whereby the Grain is depriv'd of its enriching Stock. —— If the Summer was hot and dry, the Corn will be in leſs Quantity, and have a ſhorter and ſmaller Stalk; but this Want will be ſufficiently compenſated by the Fulneſs and Hardneſs of the Grain, its Richneſs, Wholſomneſs, &c. abounding with a delicate rarify'd Vegetable Oil and Salt. For altho' there was ſome need of Rain, to moiſten the Earth's Surface, and ſo occaſion more watry Juice in the Corn, to make it ſhoot up a large Stalk and Blade, and much pulpy Grain, yet the Rarefaction and Diſengagement of the Oil and Salts of the Earth, by the great Heat, cauſes a large Aſcenſion and Increaſe of thoſe Principles in the Grain, to its great Advantage. Hence the Leaves of Trees in ſuch Weather have a fatty Juice or Manna, of a Honey-like Taſte, exuding from them in the Day-time, and condenſing into Grains, upon the Approach of the Night's Cold, which is viſibly ſeen on them the next Morning; therefore, altho' from the long and con-

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ſtant Rarefaction of the Air, in the Tracheæ or Air-Veſſels of the Corn-ſtalk in the Day-time, by the Sun's great Warmth, thoſe Air-Veſſels be expanded, and the other Veſſels which contain and carry up the alimental Juices, from the Earth to the Stalk, Leaves, Flowers, Seeds, and Fruit of the Plant, be compreſſed, and the Corn ſeems to hang down its Head, and its Leaves to languiſh; yet, upon the Contraction of the Air-Veſſels in the Night-time, the Juice, or Aliment carrying Veſſels are expanded, and receive, and ſend up into the Corn new Proviſion for the enſuing Day's Nouriſhment and Secretion; and what they receive from the Earth is much better forced with fine Oil and Salt, than a much greater Quantity, in a long rainy Seaſon; for tho' the Corn ſhoot up in a rainy Summer, yet it chiefly abounds with an inſipid Phlegm or Water.

If the former Part of the Summer was exceeding rainy, and the latter Part very dry and hot, the Corn having been full of Water in the firſt, when the laſt comes ſuddenly and continues, the

the Phlegm will exhale, the Grain ſubſide, and become very ſmall, tho' good: Hence, not a half Quantity of Grain will be got of the Stalk or Straw. —— The Goodneſs and Fruitfulneſs of the Summer is much further'd from the Froſt or Snow lying upon the Earth in the preceding Winter; provided the Snow be not ſuddenly waſh'd off, and carry'd to the Ocean by a Speat of Rain; for the Froſt congeals and locks up the earthy Oil and Salt in its Surface, and hinders their brumal Exhalation and Waſte, whilſt a new Addition is ſtill ſent up by the ſubterranean Heat. The Snow is a nitrous Salt upon the Earth, which, when diſſolv'd only by the Warmth and Temperature of the Air, it impregnates and fertilizes the Ground; and when the Spring and Summer approach, that Oil, which the ſubterraneous Heat had caus'd to aſcend, and was lock'd up by the Froſt in the Earth's Surface, riſes in great Plenty, not only into the Atmoſphere, but the vegetable Veſſels.

A dry Spring, preceeded by a wet Summer, raiſes a ſecond, or after Growth

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of the Corn, to the great Detriment of the Grain and Prejudice of the Malt; for tho' the Corn of the after Growth add to the Bulk of the Grain, yet it is not only uſeleſs for Malt, but prejudicial to the firſt Growth, becauſe it will be ſteep'd ſooner and more than the full hard Grain, and come and retroſpire before the other, whereby the after Growth will be loſt, and the other forc'd too much and prompted to overgrow.

Not only muſt we have Regard to the Seaſons, but to the Grain itſelf; for, 1. It muſt be full ripe before it be cut down, *i. e.* its ſmall Juice, carrying and Secretory Veſſels, muſt be ſo collapſed, grown together, and degenerated into Solids, as to prevent all further Growth and Increaſe of the Grain, whereby its watry Parts will exhale, and have chiefly the earthy, oily, and ſaline Particles behind, and thoſe in due Mixture, Quantity, and Poſition; for the Corn that's cut down ſooner, and heap'd together, will readily run into Putrefaction, inſtead of Fermentation. Hence we ſee that Animals and Vegetables have the ſame common Cauſe of

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old Age, Decay, and Death, *viz.* the ſhutting up of the ſmalleſt Veſſels, where Attrition and Nutrition are perform'd, and their becoming impervious.

2. It's requiſite that the whole Quantity of Grain, deſign'd to be ſteep'd and made together, be of one equal Growth; for ſhou'd one Part be ripe, and the other green, the reſt will be only an uſeleſs Increaſe of Bulk; for it abounding more with watry Parts, will ſwell and expand much ſooner than the ripe, which makes its Atroſpire before the other be ripe. And alſo its Oil, Salt, and Earth not being in due Proportion to the Water, nor fully mixt and prepar'd, it may endanger both its own and the others Putrefaction (if mow'd up cloſe and in great Heaps) before it be either threſh'd or ſteep'd.

3. The Grain muſt be lately threſh'd, eſpecially if it be Barley, for if it has been threſh'd off the Straw, cleans'd, and laid by ſeveral Weeks, it proves but ordinary Malt, unleſs it be kept in an equal Temper, either in a Cheſt, or on a large boarded Floor, and laid in Heaps about a Foot deep, and ſometimes

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turned over, for if it lies on a Barn-floor, or is laid up againſt a Wall, it is worſe, for the Barley in the Middle of the Heap will keep freſh, but that Part at the Top and outſides will be parched dry by the Air, and that next the Floor will be mouldy or rotten; ſo that when you come to make your Malt, that which lay in the Middle will come well and ſeaſonably, but that which lay at the Top and outſides will be ſo long a coming, that the other will be in Danger to atroſpire, and that which lay on the Floor and was rotten will never come at all. But if you muſt threſh your Barley before you uſe it, let it lie in the Chaff, which will preſerve it as well as the Straw.

4. Take care that the Grain you intend for Malt, be not over-heated, either in Stack, Reek, or Barn, for the inteſtine Motion of that Heat has attenuated and diſſipated ſome of its ſpirituous Parts, which will prevent its being good Malt, or if you make Bread of it, it will taſte burnt and ſing'd, for that inteſtine Motion was a begun Fire, and, had there been Moiſture enough in the Corn,

would have broke out in a Flame, and consumed the whole Heap. But if the Barley be let lye in the Chaff when its thresh'd, till it heat a little, it will be better; for then its Parts are somewhat loos'd, so will it come sooner, easier, and with less Growth, which is the chief Secret in Malt-making; for the Maltster, who has the Art to bring his Malt to Maturity, with the least Sprouting, is sure of more and stronger Ale from the same Quantity, than another can have, whose Malt was overgrown.

5. Put not the Barley which was the Growth of different Grounds into the same Cistern or Heap, for some Part of the Grain being more earthy, others abounding more with Oyl, Salt, or Water; some Grounds again being drier, others moister; and some Barley growing on Clay-Ground, some on sandy, some on a Mixture of Clay and Sand, some on stony or gravelly. The Barley which grew on the moist Ground will come first, because it contains more Phlegm and has laxer Parts: The Grain which grew on dry, sandy, stony or gravelly Ground, will be less and thicker husk'd;

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that produced by Clay-Ground mixt with Gravel is the beſt Barley; its white colour'd, large grain'd, full and ſmooth skin'd, ſweet taſted, and freeſt from Weeds, Oats, and other Mixture, its of a more ſolid and compact Body, and requires more Time to ſwell, ſprout and ferment, and the Malt rightly made from it, yields the beſt, ſtrongeſt, moſt grateful and wholſome Ale. —— Barley produc'd by a mixt Soil, is pretty large and full, of a clean Complexion, and a browner Colour. Barley which grew on ſandy Ground, is ill fill'd, empty, and thick skin'd, of a yellow Colour, wither'd, or wrinkled, and is mixt with Tares, Vetches and other Weeds. So that a Mixture of large, little, full, empty, white, brown, yellow, &c. can never produce ſo good Malt, as that which is all the Growth of one Sort of Ground. For the ſame Reaſon a Mixture of Barley of ſundry Years Growth, will not make ſo good Malt, as when the whole Ciſtern or making is of the ſame Year's Product, except the old, and dry, and hard be caſt in ſome Hours before the new, ſoft and

ſmall. —— Its alſo wrong in ſome Maltſters to mix Oats and Barley together, for the Oats ſwell and come ſooner than the Barley, and either the one muſt be overdone before the other be made, or the Barley muſt be dried when two Parts made, when the Oats is ready; whereby a third Part of the Virtue of the Barley is loſt; or if ſofter or ſmall Barley be thrown into the Steep, ſome Hours after the full, hard and dry, the firſt will be overdone in the ſame Heap, before the laſt be ready for drying, and ſo the one of them muſt have its Vertue diminiſh'd, either by overdoing or underdoing.

CHAP. II.

Of Malt-making.

BEFORE we can procure Ale, vinous, or ſpirituous Liquors from any Grain, theſe Things muſt preceed: 1. That its Body be open'd to render it ſoft and yielding. 2. That its Parts be

be put into Motion, ſo as its fine Oyl may be attenuated and made volatile. 3. After its Parts have been duly heated and volatiliz'd, that there be a ſeaſonable Check put to their further Attenuation, leſt the Oyl reduced to a Spirit, exhale and be loſt, and only the earthy Part remain, which can neither be diſſolv'd in Water, nor actuate the Ale to be drawn from it with any Spirit. 4. That it be prepar'd for an eaſy Communication of its whole Virtue to Water. 5. That all thoſe be done in a Seaſon when the Fermentation is not in Danger to riſe ſo high, as to waſte much of the volatile Oyl and Spirit of the Grain, and make it overgrow, or ſprout at both Ends; the firſt of thoſe is done by ſteeping it in Water; the ſecond, by caſting it in a Corn, or Couch-Heap, after it's taken out of the Steep; the third, by caſting abroad on the Floor in thin Heaps, and turning it often, till it be fit for the Kiln; the fourth, by grinding it into a courſe Meal; and for the laſt, the Spring-Time is the fitteſt, Winter next, and Harveſt laſt, but Summer is the moſt improper Time in

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the Year, for it's with great Difficulty (and often, if the Seaſon be exceſſive hot, it's running the Hazard of the Loſs of the Grain) to make Malt then, except it be on an Earth or Clay-Floor, which is alſo attended with its Inconvenience, for it's great Care muſt bring the Grain to come equally ; and laſtly, there muſt be a proper Liquor, to ſteep the Grain in ; hard and mineral Water are very unſuitable, for being loaded with Earth, Salts, Foſſils or Metals, they are rough, and conſiſt not of ſmall enough Parts to inſinuate themſelves into, and ſwell the Grain in an ordinary Time ; but Rain-Water, of all others, bring the ſofteſt and moſt rarified, muſt therefore be the beſt for this Purpoſe, for it penetrates eaſily the Husks of the Grain, makes its Way into the Ear, and ſwells the Corn.

The Manner of making Malt is this.

Take good Barley lately threſh'd, or cleans'd from its Chaff, caſt it into a Ciſtern of Rain or ſoft Water, and there let it thoroughly ſteep till it ſwells or becomes ſoft, which will require a long-

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er or ſhorter Time, according to the Heat, Cold, or Temperature of the Seaſon; in Winter it may be four Days and three Nights, in the Spring three Nights and two Days, in Summer two Days and Nights will be ſufficient. When its duely ſteep'd, the Water muſt be drain'd off for twelve or eighteen Hours, then take out the Corn, and lay it on the Malt-Floor, and couch it into Heaps, round, long, or flat a top; the Thickneſs of the Heap muſt be agreeable to the Seaſon, if cold it may be three Feet thick, if temperate or warm two Feet, a Foot and a half or one Foot, according to the Quantity of the Grain.—In this Couch it muſt lie two or three Nights without ſtirring; if the Heap be too thick, the Inſide will be ſcorch'd, while the Outſide is cold; if it be too thin, the Preſſure and Contact of thoſe little Bodies will be too ſmall to excite a neceſſary Heat in them, ſo as they may ſhoot and ſprout, ſeeing the Cold inter-pierces its Way through the whole Heap.——When the Heap heats and grows warm, the Embrio of the Grain is mov'd, begins to expand itſelf and caſt forth

forth its Roots. —— It would alſo be proper, when the Grain is taken out of the Ciſtern, to put it into ſome Strainer or Sieve, to free it from its ſuperfluous Moiſture, before it be caſt into the Heap.

The Deſign of this Heat and Vegetation is, that the vegetable Oyl may be broken ſmall and fine; ſome, after the Grain is caſt into the Heap, turn it every ſix Hours, the Inſide outmoſt, and the Bottom upmoſt, that the whole Grain may ſprout alike, and have all its eſſential Oyl ſubtilized for, ſhould any Part of it continue ſtill cold, and not vegetate, it would be uſeleſs. —— After it's caſt into Heaps, care muſt be taken that it comes not too faſt, and when it comes, ſpread it very thin and turn it often, *viz.* every ſecond, third or fourth Hour, or oftener, till the Sprout be dead; then caſt it again into thick Heaps on the Floor and turn it as before, both to prevent its moulding and the Blades ſprouting out of the End oppoſite to the Root, or the Grains growing at both Ends, which is atrophiring: for then the whole or greateſt

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Part of the attenuated Oyl and Salt' call'd Spirit, is loſt, and chiefly an earthy, mealy, inſipid Part is left, which is indiſſolvable in Water: Hence, he is the beſt Artiſt here, who can ſooneſt drain the ſuperfluous Moiſture from his Grain, after it's taken out of the Steep, and can readieſt ſtop its further Vegetation; or he who has the Secret to make his Grain ſoft, and ſweet, with the leaſt ſprouting. —— Others let the Grain lie three Nights in the Couch-heap, without ſtirring it; then they ſee if they can perceive the leſt coming or ſprouting, at the white End peeping out, then they break open the Couch, and in the midſt where the Barley lay warmeſt, they find the Sprout much larger, then they turn all the outmoſt of the Heap inmoſt, and that which was in the Middle to the Bottom and Outſide, and caſt it into a three times broader Heap than it was before, and let it lie ſo all that Day and Night; next Morning they turn the whole Heap over again, making it ſtill thiner, and of an equal Thickneſs; they ſuffer it not to be above a Hand-breadth thick, then for ten, twelve

or

or fourteen Days after, they turn it every Day once, twice or thrice, as the Weather is cold, temperate or hot, then bring it to the Kiln, and ſpread it about three Fingers thick, and dry it with a gentle Fire, turning it over frequently till they find it ſufficiently well dry'd, which they know both by its Taſte and falling of the Corn or Sprout. As ſoon as they perceive the Corn begin to ſhed, they rub the Malt well between their Hands as they turn it, to make the Corn fall off; then, finding it well dry'd, they put out the Fire, and let the Malt cool ſome Hours upon the Kiln, then they ſhake it together in a Heap, and lay it up in the Grainery, with its Corn, and let it lie one, two or three Months to ripen, if they have not ſooner occaſion for it; but they ſhould lie no longer together, leſt the Malt breed Worms or Vermine, then they clean it well before they ſell or uſe it; for the cleaner, brighter and likelier the Barley, the better, more profitable, and leſs Waſte is there of it, for Duſt and Corn not only drink up the Liquor, but give the Beer an ill Taſte. — Firſt therefore, they rub it well,

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hen winnow it, then ree it over in a fine ieve, and ſo rub and ree it till it be ve- y clean.

Some dry their Malt upon Wheat traw laid thick upon the Kiln, others pon a Hair-Cloth, and ſome uſe a Tin- ottom full of Holes over a Charcoal or oak (that is, Coals burnt till the Smoak e almoſt over, and then extinguiſh'd) ire; but not too ſtrong leſt it ſcorch or urn the Grain, or make the Ale of a eddiſh brown Colour, and give it an mpyreumatick Taſte. The Ale from his high colour'd and quickly dry'd Malt ften occaſions a Load and Sickneſs at the tomach, and proves a Purge to ſuch as e unaccuſtom'd to it, from the fiery articles forc'd into and fix'd in the Malt, hich it communicates to the Liquor, nd irritates the inteſtinal Glands, where- y they ſpue out their Liquor, and ac- elerate the Expulſion of the inteſtinal æces, and theſe often of the brown olour with the Liquor drunk, is ſuffi- ent Evidence that the Malt was rather orch'd than dry'd, and had many fiery articles fixt in it, and when this is ew'd and fermented, it has little Hopp

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put to it, and little more than half fermented, and ſo put up and drunk before it begins to fine; this is call'd *Porter*, a Liquor fit only for Plough-Men, Porters, Carmen and Draymen, or the moſt laborious Mechanicks, and the beſt Conſtitutions; but to others its a moſt injurious Tipple, it obſtructs and furrs up the Inſides of the ſmall Veſſels, loads the Lymphaticks with Mucus, and fills the adipoſe Veſicles with a tenacious Oyl, and makes the Body ſeem fat; and for theſe very Reaſons, its the beſt Draught in the World for the moſt laborious Drudges. Some dry their Malt with Peat; Turf, Bean-Straw, Wheat-Straw or Coal; the firſt four give the Liquor a nauſeous Taſte, but the laſt makes it intolerable to ſuch as have ever taſted better.

Some Maltſters remove their ſprouting Grain ſpeedily from the wet Couch to the Kiln; but the common and better Cuſtom is, to remove it ſlowly and by Degrees, by ſpreading it out in thin Beds, ſo as the Air may freely come at all its Parts, and carry off its Humidity, and make it fit for drying readily

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by the gradually increas'd Fire of the Kiln.

The Malt-Houſe ſhould be built on a firm dry Ground, on ſome riſing Place, free and open on all Sides, and have many long ſmall Windows in its Wall, to admit the Air and Sun, and Shuts or Draw-Windows to keep out the Froſt and Cold, than which nothing hinders more the Growth and Perfection of the Malt.

When the Barley is fully ſteep'd the Water turns of a reddiſh Colour, and the Grain ſwells much; if it be over-ſteep'd, its either in Danger of rotting, or too ſudden Diſſipation of its beſt Parts when it comes to the Heat; if it be too little ſteep'd, its Parts not being well tumified and ſoftened, the Fermentation cannot break its Oyl into ſmall enough Parts, that it may emit its whole Spirit in Brewing. But its impoſſible to ſet a certain Time, for new Corn requires leſs Time than old; moiſt, leſs than very dry; the Product of clayie Ground leſs than that of ſandy; warm Weather a ſhorter Space than Cold; Rain, or ſoft Water, leſs than River-Water; River-Wa-

ter leſs than hard or mineral Water, &c.

Some plead that thirteen or fourteen Days is ſufficient for mellowing or making of Malt, *i. e.* from the firſt putting of the Grain into the Steep till the Malt be dry'd; for ſay they, hereby the Corn is leſs ſullied upon the Floor, it looks whiter and brighter, and ſhoots not forth ſo long Sprouts, keeps more Heart in the Grain, it's bolder and fuller, and ſo affords more and better Ale. ——— Altho' this Objection ſeems to have much Weight, yet let us conſider, that that Malt which wants of its due Time, can neither ripen, mellow, nor come to Perfection, and therefore Barley muſt have eighteen or twenty Days, *viz.* a Week to ſwell or ſprout, four or five Days to flouriſh, and five or ſix Days to decay in; it's true, Malt of the leaſt come muſt have the greateſt Kernel, and moſt Subſtance, but if it have not put forth its right Sprout, but retain'd the Moiſture which ſhould be expell'd, it can never be Malt for keeping; for even the Moiſture, which it will ſoon imbibe or attract after dreſſing,

will

will breed many Worms in it. — That haſty made Malt will look well, be very ſaleable, and if quickly us'd falls not much ſhort of perfect made Malt, but three Months keeping will diſcover the Error. 2. Malt that is not allow'd to ſprout kindly, but ſtopt when it begins to peep out, much of it cannot come at all, for it's only its moiſt and lax Grains that ſprout firſt, the more compact and dry require more time to break the Husk. Nowif you ſtop the Come when you ſee the firſt Sprout, and not give harder Parts of the Grain Time to come, it will be half Malt half Barley, and fitteſt for good Hen and Hogmeat; ſo that good and perfect made Malt for Uſe and keeping requires eighteen or twenty Days to compleat it. —— But as you are to take Care that your Malt come not too little, you muſt be more watchful that it come not too much, for that's the worſt Miſchief that can be done to Malt, and is moſtly occaſion'd from neglecting the Couch, till the Grain be atroſpir'd, and its beſt Parts be volatiliz'd and exhaled, and the reſt fit only for the Hog-trough; therefore muſt it not only

be turn'd duly, but equally its Outſide in, and Inſide out, for if ſome be ſcatter'd and left behind unturn'd, or leave the undermoſt on the Floor, ſome will come too much and other Part not at all, and the Malt unequally and imperfectly made; the like will be the Caſe if you mix old and new Barley together, or moiſt and ſoft with dry and hard, or little Grain with great, or old threſh'd with new. —— If there be a violent cold Seaſon that hinders the coming of the Grain, then it muſt be laid upon a Board-Floor in a great Heap, and all the Kiln-Doors and Windows made cloſe up, and the Malt covered with ſeveral Folds of thick woollen Cloth, then will it come preſently, then take off the Cloths, and order it in all Reſpects as before. On the contrary, if the Weather be ſo ſultry hot as to endanger the over ſprouting of the Grain, it muſt be ſpread or laid in very thin Heaps and often turn'd.

Oat-Malt is made the ſame Way as Barley, only it ſprouts ſooner and is more apt to clutter, ball, and hang together from the Length and Twiſting of its

Sprouts

Sprouts, therefore muſt it be oftener turn'd ; Oats need leſs of the Floor than Barley, for twelve or thirteen Days is ſufficient to make perfect Malt of them, they muſt lie ſhorter Time in both ſteep and Couch-Heap, leſt they overgrow and be ſpoiled. —— Its overdrying of Malt ſcorches it, and gives it that Taſte call'd Fire-fang'd, and cauſes its Ale to gripe and purge. So on the contrary, if the Fire be too ſlow, the Malt will indeed be better dry'd and keep longer, without imbibing Moiſture, but the very pale Liquor it affords (if ſtrong) will be hard of Digeſtion, and in the Studious inactive and valetudinary ; it fouls the Glands, cauſes Obſtructions, Tumours, or dangerous, putrid Spring, or Summer Fevers. Therefore Ale made of very brown and reddiſh colour'd Malt, is beſt for Ditchers, Threſhers, Porters, *&c.* that of very pale is ſuited to the laborious and ſtrong, whoſe Food is poor and Labour great. The light Amber colour'd moſt proper for others, and if this be well hopp'd and fermented, tunn'd and ſhut up cloſe in a good Cellar, and not pierc'd till it be fine and

ripe, and not be made too ſtrong, it's the beſt Liquor in the World.

CHAP. III.

Of the Vertues of Barley and Malt.

BARLEY is not only advantageous in the common Uſes of Life, for Meat and Drink, but its good in ſeveral other Intentions; for by its cooling Quality it allays intenſe Heat, and Sharpneſs of the Humours of the Body, and by its cleanſing Power it opens Stoppages of the Kidneys and Bladder; Barley Bread is a great detergent in Diſeaſes of the Breaſt, where the bronchial Veſſels are ſtuff'd with much Viſcidity: It's a good Ingredient in the pectoral Decoction. A Decoction of it is good againſt Thirſt, and cleanſes Ulcers of the Lungs, Stomach, Kidneys, and Bladder; A Cream made of it is cooling and nouriſhing in ardent Fevers: An Emul-

Emulſion of it with *Sal Nitre* is beneficial in Stranguries, Claps, and Gonorrhæas: A thin Broth of it, is good in the *Morbus Cholera*, or ſudden and violent Vomiting and Purging. Rough Barley boil'd in Water, and Honey of Roſes put to it, is a good Gargle for inflamed, but eſpecially ulcerated Mouths. Barley-Water is very proper in all Inflammations and great Fevers attended with Thirſt, great Heat and Dryneſs of the Skin, Tongue and Mouth; rough Barley boil'd and given to Horſes makes them fat, ſleek and fine skinn'd; and boil'd in no more Water than it drinks up, or ground in a Mill, and made into a Paſte or Maſh, is excellent for cleanſing and fattening Hogs, and makes their Fleſh clean and wholſome. A Pultis of Barley-Meal apply'd, is good for inflam'd Eyes, or any recent ſlight Inflammation, *&c.*

Malt is rarely us'd in Medicine, either internally or externally, except by ſome Ruſticks, who grind it into a fine Meal and make ſhift to bake it, and give the Bread to Children to eat to kill Worms and Inſects in their Bodies, but I could

could never underſtand any great Succeſs from it. It was in ſome Places formerly a Practice with ſeveral that were afflicted with rheumatick or erratick Pain, to hire the Maltſter's Servant to let them go into the Couch-Heap when it was very hot, and ſweat ſtrongly in the Malt; but the Hatefulneſs of the Thing, and eſpecially the fatal Effects it frequently had on ſeveral who went in, not much affected but were taken out dead, has ſpoil'd the Trade, and the under Malſter's Gain. Ground Malt made into Maſhes and given to Horſes that were dry'd in their Body, or had a ſlow Fever, or when their Hair ſtood up an End, or after great Heats, or when their Blood was fizy, and Glands foul, Legs ſwell'd, has been of ſpecial Service to them. Pultiſes made of Malt with other Emolients, as Mallow-Leaves, Camomil, Elder and Melilot Flowers, and Lintſeed, is of great Advantage to relax contracted Limbs, or where the Bones have been ſome Days diſlocated, and the Reduction cannot be eaſily or ſafely made, either becauſe of the Contraction of the Muſcles, or Repletion of

the

the Cavity of the Joynt with Sinovia ; in theſe Caſes it's a pity that the preſent Practice takes no more Notice of it, for it's capable to do more alone than the whole Heap of Emolients that we depend upon : The Truth of this I hav ſeen with great Satisfaction. In flatulent Stitches, and even in inflammatory Pains of the Side, I have often ſeen a Pultis of Malt give ſurpriſing and unexpected Relief. In flatulent Cholicks, ground Malt warm'd and laid round the Belly, frequently gives Eaſe. In rupture Cholicks where the Ilia have ſlipt out of the Belly and got into the Scrotum, and cannot readily be reduc'd, a Pultis of Malt boil'd in Water will take off the Contraction of the Membranes, allay the inflammatory Diſpoſition of the Parts, and ſo ſoften and relax them, as the Inteſtines will either go back of themſelves, or be eaſily reduc'd with the Hand. Malt duſt enriches barren Lands, and mightily improves Barley, if ſown after the Seed, forty Buſhels to one Acre of Ground, but it laſts only for one Year.

CHAP.

CHAP. IV.

Of Brewing.

UNDER this Head I ſhall diſcourſe of the Seaſon, the Water and the Action. —— If we would make Ale or Beer to keep long and good, we muſt brew it in Winter: For 1ſt, the Water is not ſo much rarified by the Rays of Light, and Heat; therefore not ſo fit to inſinuate itſelf into, nor attenuate, diſſolve and bring forth the fine Parts, or Oyl of the Grain, therefore you muſt be neceſſitated to uſe a greater Quantity of Malt, or leſs Water in Winter, for altho' the Warmth of the Water wherewith the Malt is maſh'd, may ſeem to compenſate the Want of this Rarefaction, yet conſider the Parts of the Malt, eſpecially its fine Oyl and Spirit (which is what we expect it ſhould communicate to the Water) are more condens'd and lock'd up during an intenſe Cold; than when the Air is rarify'd, and conſequently the Air in the Grain bears

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Proportion to that of the circumambient Atmoſphere : The leak Liquor alſo thrown on afterwards is either overboil'd, whereby its fineſt and ſofteſt Parts are exhaled ; hence can it not open nor ſoften the Malt ſo much, or if it be cold it conſtringes the Body of the Grain, and ſhuts up the fine Parts which the former Warmth had begun to diſſolve and ſet at Liberty. —— 2d, During the Winter, the brisk vegetable Exhalations are ſhut up in the Earth, and not ſuffer'd freely to evaporate or diffuſe themſelves in the Air. —— 3d, In Winter the Atmoſphere is too heavy, and hinders a due Fermentation.

The Summer is likewiſe a very improper Time, for altho' the Water be rarify'd by the Light and Heat, and the Air lighter, and loaden with vegetable Exhalations, yet is the Atmoſphere too light and rarefy'd for a regular Fermentation, which will riſe too high, and cauſe the Spirits of the Liquor to exhale, the Ale muſt continue turbid, and ſoon turn flat and vapid. —— The Spring and Autumn muſt therefore be the beſt Time for brewing ; for Malt brew'd alone in

a very warm Summer, is ſo diſpos'd to run into a violent Fermentation, that there's a Neceſſity to mix ſome crude Barley or other Grain with it, ground down to a coarſe Meal, to check the too ſtrong fermentative Diſpoſition of the Malt, whereby its vinous Spirit would exhale and be deſtroy'd in the Fermentation, to the Prejudice of the Ale. But ſuch as brew in Winter may ſafely ſpare the Expence of this Mixture.

We are next to regard the Choice of good Water, and that is ſuch as is very ſoft, will bear Soap and make the beſt Lather, therefore Rain-Water challenges the Preference of all others; 1ſt, becauſe it contains in it the feweſt metallick, foſſile, ſaline, or earthy Parts. 2d, Becauſe being elevated and drawn up by the Light and Warmth of the Sun, and Atmoſphere, it's rarefy'd, divided and ſeparated into the leaſt Parts, and ſo can readily and eaſily penetrate the Pores of the Grain and extract its Vertue. 3d, In the Spring-Time it's ſtor'd with unctuous and active Exhalations in the Air from all the vegetable Tribe, ſwim-

ming in the Atmoſphere, adhering to and entangled by the watery Particles, which Vapours had been lock'd up in the Earth during the Winter-Cold and Decay of Plants; but upon the increas'd Heat, cauſed by that glorious Body of Light, they are diſengag'd, ſeparated, ſet at Liberty, and riſe up plentifully into the Air. —— All Waters which waſh mineral *Strata*, or carry much Earth in them, or riſe out of much blue Clay (which contains much Iron in it) are unfit for Brewing, becauſe they are too hard. It's alſo unſeaſonable Brewing when the Springs are very low, that is, in great Drought either in Spring or Harveſt, for then the watery Particles are more condens'd, have more Earth in them, and are harder.

Come we now to the Manner of Brewing, which is this. Having put the ground Malt into a brewing Vat, or Maſh-Tub, cauſe the Water to boil ſpeedily, and when it boils with the greateſt Violence, draw the Liquor into another Veſſel, or damp out the Fire, and let the Water cool, till the Stream be ſo fallen as a Man may ſee his Face

in it, (for 1ſt, too great a Heat criſps the Malt, and cauſes it to contract, inſtead of dilating its Pores and Parts, and yielding its whole Virtue; and 2d, the great Steam that is loſt in much boiling, or ſtanding in an open Veſſel when boiling hot, is the ſofteſt, fineſt, and moſt penetrating Part of the Liquor, which is chiefly inſtrumental in attenuating and diſſolving the eſſential Oyl and Salt of the Grain) then put it into the Maſhing-Tub to wet the Malt as ſtiff as it can be row'd, let it ſtand ſo a Quarter of an Hour, then pour on another Part of the Liquor, and row as before, for by a gradual Infuſion of the Liquor you will obtain the Virtue of the Grain more eaſily and fully, at laſt add the full Quantity of Liquor you deſign, then row it; and laſtly, ſtrow ſome dry Malt all over it, to cover the Maſh and keep in its Heat; and let it ſtand ſo two or three Hours according to the Strength of the Wort, Difference of the Weather and Water; then draw it off into a Receiver, and maſh again for a ſecond Wort, with a ſomewhat cooler Liquor than the former, and let it not ſtand

above

above half the Time, then draw it off, and mix thoſe two Worts together, put in the Hops, and turn all into the Copper, which ſhould have a large blind Head to receive the Steam, and let it fall down again in Drops that nothing evaporates; here let it boil for two Hours, an Hour and a half, or only one, according to the Strength of the Wort, then draw it into a Receiver and ſtrain the Hops from it, ſo have you a Wort with the whole Virtue of both Malt and Hops, which when duely cold and fit for Barm put it to it.

If you intend only a ſmall Beer for Servants, maſh your Malt a third Time. with almoſt cold Liquor, and let it ſtand about three Quarters of an Hour, and draw it off, and hop and boil it half an Hour, and if it taſte too ſharp and harſh, put a little Honey or Melaſſes to it, and it will be excellent Drink. If you be for making double Ale or Beer, uſe the two firſt Worts inſtead of Water to maſh again with freſh Malt, and then it only extracts the friendly balſamick Qualities from it, the Particles of the Liquor are made globular,

and

and it's defended from Corruption: For Drink brew'd thus may be tranſported to either of the *Indies*, not only in its full Goodneſs, but it becomes richer; wherefore it's neceſſary that ſuch as is deſign'd for Tranſportation ſhould contain three Times the Vertue of the ſingle, becauſe of its intended Duration and Soundneſs; but the ſingle, if not well brew'd, ſoon corrupts, ropes and ſours.

The Allowance of ordinary Beer is, 60 Gallons from a Quarter of good Malt. But to brew the beſt *March* Beer, take a Quarter of the beſt Malt, and mix with it a Peck of Peas, half a Peck of Wheat, and as much Oats, all ground like Malt, mix all and brew as above, and take only 40 Gallons of wrought Beer from it, and after it draw off 24 or 26 Gallons of ſecond Beer, and let the Hops of the firſt ſerve this; this Beer requires a Year to ripen, and will keep good 4 Years in the Cask if it lie cool, tho' it be drawn off never ſo lieſurely. —— The Maſhing and Brewing of ſtrong Ale, is the ſame in all reſpects as that of ordinary Beer, but becauſe it will not keep ſo long it muſt

be

be made in leſs Quantity, and take 15 Gallons of Ale from a Sack of Malt; but before the Hops be put in, they ordinarily blink it in the ſouth Country, by caſting into the Wort a Handful of Oak-Bough, a Pewter-Diſh, or a Piece of Leaven, or a little Flour or Oatmeal, and let it ſtand till the Wort looks paler than before; then take out the Diſh, Leaves, or Leaven, and put in the Hops and boil together a full Hour. Then having ſet your Barm to riſe with ſome ſweet Wort, when the Wort is only Milk warm put all into the Guile-Vat, and as ſoon as it riſes beat it down with a Diſh or Bowl, and ſo keep it down, and let it work a Night and a Day, and then tun it up; but the much better, and wholſomer Way is, to put the Hops into the Wort as ſoon as it comes off the Vat, and boil it. After this ſtrong Ale is come off, you may draw off ſeven Gallons of good middling Ale, and four of very good ſmall Beer, or twelve Gallons of good Table-Beer.

Bottle-Ale is brew'd juſt like ſtrong Ale, only it muſt be taken in a larger

Quantity, as at leaſt 20, or 24 Gallons from half a Quarter, or Sack of Malt, the Wort may be more blinked than the ſtrong Ale-Wort, and it agrees much better with Blinking; for that gives the Liquor that Sharpneſs, Quickneſs, and Briskneſs, which makes it ſo much deſir'd. When it's bottled off, the Bottles muſt be well cork'd, the Corks ty'd down with Packthread, and the Bottles ſet up to the middle in Sand, in a very cool Cellar; ſo will no Heat, Weather, Thunder, or Lightning hurt it.

To know when Wort is well boil'd, 1. Conſider the Strength of the Wort, for ſtrong Wort requires more Boiling than weak. 2. See when it breaks like Curds and Whey, and boil a pretty while after. Some, to make Wort break ſoon, caſt into it as ſoon as it comes a boiling, a Quart of Water. 3. When Wort is well boil'd, the Hops ſink to the Bottom.

The Quantity of Hops uſed for Wort is according to its Strength, intended Keeping, and Goodneſs of the Hop; for if you brew *March* Beer, you muſt

muſt allow four Pounds of the beſt Hops to a Quarter, or four Buſhels of Malt, if you deſign the Beer to be very fine, and keep long, as four, five, or ſix Years: If you intend a greater Duration you muſt put in more Hops; if only a Year, three Pounds are ſufficient, or it will be diſagreeably bitter. If you make Ale, you muſt allow two Pounds and a half of the beſt Hops to the ſame Quantity of Malt; or if you let it ſtand till it is fine, you muſt put in two Pounds three Quarters. If the Hop be not very good, you muſt allow five Pounds for Beer, and three Pounds, or three Pounds and a half for Ale. If you brew only Table-Beer of about 70 Gallons from a Quarter of Malt, two Pounds, or two Pounds and a Quarter is ſufficient of Hops.

A certain Quantity of Malt-Liquor of equal Goodneſs and Strength, from the ſame Quantity of Malt, cannot be exactly fixt, becauſe of the Difference of Barley, in Reſpect of the Seaſon, Ground, Reaping, Threſhing, making into Malt, &c. and the Difference of Water, Manner of Brewing, &c.

A very good Beer is alſo made from

Melaſſes,

Melaſſes, thus. Prepare the Water as above, and upon every hundred Weight of Melaſſes pour 40 Gallons of Water, ſtir all together till the whole be diſſolved, and caſt into it the Pewter, Boughs, or Leaven, then add Saſſafras, or Juniper-Roots three Pounds, dried Bawm half an Ounce, Cloves, Cinnamon, and Nutmeg, each one Ounce; then put all in the Copper, and fix on the Blind-Head, and lute it well with a Paſte of *Spaniſh* White and Rye Flour, and digeſt 24 Hours; then let it run out into the Receiver, and when it's Milk-warm put in the Barm: Let it work ſufficiently, then tun it up, and let it ſtand till it ripens and becomes mellow. If you want a Blind-Head the Cinnamon, Nutmegs, and Cloves muſt not be put in till it be tunn'd.

When you brew ſtrong Beer, put not too much Beans, Wheat and Oats to the Malt, leſt they give it a Taſte. Obſerve alſo that all blinked Wort makes the Ale have a harſh, eager, diſagreeable Taſte, and bad Colour; ſo that, except it be for bottled Ale, it's better to hop Wort than blink it.

This

This is the Method of brewing drinkable Malt-Liquors; but if they be design'd for Diſtillation, the Water muſt be little more than Milk-warm; and the Malt being in a Maſh-Tub, put on juſt ſo much Liquor as wets it, then row it ſtoutly for half an Hour together, till it's all mixt in every Part, then may be pour'd on the full Quantity of Lqiuor, but the ſtiffer the Maſh is, it's ſo much the better; then ſtrew it all over with a little freſh Malt, and let it ſtand an Hour and a Quarter; then let off the Wort into a Receiver, and maſh again with freſh Liquor, row it again, and let it ſtand one Hour, then let off the Wort; this do a third Time, and ſome add a fourth; but thrice is ſufficient. Some boil their Liquor, and let it cool as every Wort comes off; they pump it out of the under Back into a Cooler to cool, then from the Cooler into the waſh Backs, and let it ſtand till the three Worts come together, but they neither hop nor boil; but when the Liquors are in the Backs, and duly warm, they put in a ſufficient Quantity of good Barm, and work it well,

as

as for Ale; and as the Yeſt riſes up, they beat it down again, and keep it all in; they let it work three, four, or five Days, according to the Seaſon of the Weather and Temperature of the Back, when ſet according to the Diſtiller's Diſcretion; for a Back-Waſh, ſet either too cold, or too hot, may be eaſily help'd by adding in hot or cold Liquor; when they exactly know the Time when the Waſh is come, the thickeſt may be taken off to ſet other Backs with. The Signs when the Waſh is come are, it will work itſelf flat, and then the thick Yeſt will work itſelf to the Bottom; and what ſtands at the Top will be a Kind of Heaves, or yeſty Heads; and obſerve that the Waſh be neither ſour nor ſweet, but in a medium between both, for then it's profitable for the Diſtiller.

Wort is a very great Softener; it's drank by ſome to kill Worms; if drank moderately, it gives three or four looſe Stools. It's proper for very few medicinal Intentions, except in ſome Diſorders of the Breaſt, where the bronchial Veſſels are very weak and flen-

ſlender. A Decoction of Wort with ſuch Things as diſpoſe its Parts to Motion, and prevent its ſtuffing of the ſmall Veſſels, may be of Service. Wort drank too freely provokes Vomiting and Looſeneſs, cauſes Flatulency and Gripes, is hard of Digeſtion in the Body, it begets Obſtructions, ſtops Urine, and blows up the Hypocondria.

CHAP. V.

Of Fermentation.

FERMENTATION is an inteſtine Motion, rais'd by the Occurſions and Colliſions of Particles of different Gravities; for the ſpirituous, from their Levity and Subtility, ſtrive to aſcend and get to the Surface, and exhale, but the viſcid ones entangle them, ſtop their Aſcent, and prevent their Exhalation. The included Air is a great Inſtrument or Cauſe of it, for the Motion and Expanſion of its Particles being intercepted between the ſubtile and viſcous

Parts

Parts of the fermenting Liquor, they ſtrive ſtill to dilate, aſcend, and eſcape. Theſe Colliſions of different Particles, and the Action of the Air, are the two Cauſes of this Action. But of this I have treated in P. 11, 12, of my former Diſcourſe.

The Fermentation, or Working of our Wort is done beſt in a ſeaſon'd Veſſel. 1. Becauſe the Parts of the Liquor, formerly fermented in it, having impregnated it, they preſently exert their Force upon the new Liquor, rouze up its Parts, and determine them to Action much ſooner than any new unſeaſon'd Cask could do. Nay, the ſeaſon'd Veſſel of itſelf will excite a Fermentation in the Wort pour'd into it. 2. A new Veſſel not only renders the Fermentation weaker and ſlower, but imbibes from the Liquor a large Share of its Spirit and fermentable Parts, which makes the Remainder, when wrought, to taſte more flat and vapid; therefore muſt this Veſſel for Fermentation be of Wood; for Glaſs or earthen Veſſels never ſuffer the Fermentation to go on regularly, but are proper only to diſco-

ve

ver the Phænomena which occur during the Action. —— If the Wort, when it's boil'd, were put into a ſeaſon'd Veſſel, and let ſtand, it would ferment of itſelf, but in the Winter-Time it would work very ſlowly and imperfectly; therefore is there ſtill a Neceſſity to add a Ferment, which is ordinarily Yeſt or Barm: But People in the Country, at a good Diſtance from Towns, or publick Houſes, uſe ſeveral Stratagems to preſerve a Ferment, which ſhall always be ready: They caſt into a working Vat, a Broom, or Juniper-Branch, or a Withe made of a Haſel-Rod, and let them lie in the working Liquor, during its Fermentation; then take it out, and hang it up in any dry Place, it dries, keeps its Ferment, and is ready, and as good as Barm, tho' not us'd for 9 Months after. I have ſeen ſeveral of theſe, which have been us'd very ſucceſsful for many Years, and never fail'd, nor marr'd the Drink. —— Leaven, Sugar, or Honey put into Wort, do all raiſe a Fermentation. Some uſe Flour and Eggs, others *Caſtile*-Soap, or the eſſential Oyl of Barley, or the Quinteſſence of Malt,

or Wine, or the Sal Panariſtus, or Barm taken from the Top of the Vat and let ſettle, then pour Water upon it, and change the Water once a Week, the Barm will be good ſix or eight Weeks after.

The Things which promote Fermentation are, 1. Reſt, that ſo the Barm on the Surface be neither over much, nor often broken, and give Opportunity to the Spirits to exhale and get off. 2. A free Admiſſion of the external Air, ſo as it may have Acceſs to, even the midſt of the working Ale, unleſs the Air be very heavy, for then the great Preſſure of the Atmoſphere puts a Stop to Fermentation; therefore, 3. A temperate Weather is neceſſary, for an over rarified or compreſſed Air are the Bane of Fermentation. Hence there's a Neceſſity for chuſing a fit Time of the Year; when the Air and Water abound with Exhalations from ſpringing Vegetables of the ſame Kind, for the fermenting Liquor ſucks in thoſe Particles which float in the Air, whereby the Strength and Spirit of the Liquor is heightened, and Fermentation promoted:

moted: Thus Ale made of Peaſe, Beans, Rye, or Nuts, would ferment beſt, and be ſtrongeſt, if made when the Grain was in Flower; for this Reaſon it is that Wines are on the Fret, when Vines are in the Bloſſom; and Roſewater which was dead ſhall recover its fragrant Smell when Roſes are in their Prime, tho' it be at Sea ſome Hundreds of Leagues diſtant from Land. From whence we learn, 1. The great Diſſipation, and wide Expanſion of the exhaling Particles of Vegetables. 2. The Elaſticity of the Air. 3. Its conſtant inteſtine Commotions. And laſtly, its neceſſary Communication over the whole Globe.

When the Fermentation riſes too high, it's eaſily check'd by caſting into the Liquor Oyl of Sulphur, Spirit of Salt, or Spirit or Oyl of Vitriol, or any other Acid; or what's conſtantly done by the Wine-Merchants when their Wines are on the Fret, either by much Motion, or in the Spring, burn a little Sulphur under, or near the Veſſel, and that checks its Fury at once. The Fermentation of Melaſſes in Water is laid in a Moment by throwing a little Pow-

der of Jalap into it. 2. If the Ale be ready, tun it up, and ſtop the Veſſel cloſe, ſo as the Liquor may have no Communication with the external Air. Or, 3. Exhauſt the Air out of the Cask, and ſo ſhut it up: Or, 4. Set the Cask in ſome very cold Place, or in cold Water: Or, 5. Compreſs the Air in the Cask, and ſo ſhut it up.

The chief Phænomena which happen during Fermentation are, 1. After the Wort and Barm are mix'd, the Liquors begin to ſwell, riſe up, rarify, and ſet up many ſmall Bubbles to the Top, which breaking by the ſuperincumbent Pillar of Air, ſend forth a hiſſing Noiſe, and turn into a Froth, and the whole Liquor from tranſparent turns opaque or dark; and there's a very ſtrong and conſtant inteſtine Motion diſcoverable in it. 2. The Parts of the fermenting Liquor ſeem very elaſtick, and their Motion incredibly violent. 3. A thick Skin or cruſty Scurf is form'd on the Top of the Liquor, but not ſo cloſe as to prevent the Eſcape of the elaſtick Matter through it. This Skin appears to be the chief Cauſe of Fermentation,

for

for it hinders the Diſſipation and Waſte of the ſpiritous Parts of the Liquor; if it be often broken, it retards Fermentation; or if it be wholly taken off the further Action is ſtopt. 4. This Cruſt of Yeſt at the Top waſtes by Degrees, and falls down to the Bottom of the Liquor, and is call'd its Dregs or Mother, and then the Liquor above it becomes clear again, ceaſes hiſſing and bubbling, has a ſharp ſpirituous Taſte, partly acid and partly ſweet.

CHAP. VI.

Of Tunning and Keeping Ale.

WHEN the Ale or Beer has wrought as long in an open Vat as is proper, it muſt be tunn'd up into a ſeaſon'd Cask, *i. e.* a Veſſel that has had Ale in it before; for if it be put up in a new Cask, either you muſt make the Ale ſtronger than ordinary, or it will not keep ſo long good, becauſe the Cask imbibes the Spirits, and the reſt ſoon

becomes flat and vapid. —— This, and not Age, is the Reaſon why Brandy, and all diſtill'd Spirits, whether Low-Wines, or Proof-Spirit, after ſtanding ſome Time in the Cask, loſe their empyreumatic Taſte, and fiery hot Tang, for the Cask abſorbes the more fierce and eager ſubtile Parts of the Spirit, and the hot fiery Particles are darted into, and ſtick cloſe in the Wood; hence the Spirit becomes mild; the Cask, on the other Hand, ſends forth its Particles into the Liquor, which give it its Colour. Not only muſt the Cask be ſeaſon'd, but ſweet-ſcented, for the Preſervation of the Liquor. To ſweeten the Veſſel, you muſt not ſcald it at one Time and waſh it with cold Water at another, for this is the ſtraight Way to have your Beer cask'd; for ſcalding the Veſſel does not ſo much waſh away the Smell of the Tilts and Grounds, as it attracts them, and ſtirs up the gummous, reſinous, and oyly Parts of the Wood in the internal Surface; and as that finds ſomewhat to operate with, it acts, gives a ſudden Ferment, and makes the Liquor tunn'd have that cask'd Taſte.

But the *Dutch* wholly prevent this, by causing the Cooper, or Brewer's Servant to take out one Head of the Vessel, then bring it to the River, and with a clean Broom wash it well, and brush every little Chink stoutly; then they set the Cask on end and let the Water run out at the Spiggot-Hole. Others rub them with Hop-Leaves that come out of the Wort, and so rinse them with cold Water, and when they are dried and the Head put in again, they take a long Piece of Canvas, or Linnen-Rag, or Cotton-Wick, dip it in melted Brimstone, and cut it into Matches, and with a few Coriander-Seeds in it, set it on Fire and put it in at the Bung-Hole, let it burn in the Vessel, and keep in the Sulphur-Fume as well as they can, by laying on the Bung lightly; and when the Match is burnt out, they put the Bung close in for a short Time, then take it out again and give free Immission to the Air, and the Cask turns sweet as a Violet, for the burning Sulphur attracts and imbibes the more loose and vague *Effluvia* in the Cask, and firmly fixes the rest, so as the Liquor afterwards

wards can neither diſſolve nor imbibe them; for the burning Sulphur is the moſt ſtrongly attracting Subſtance, and beyond all other Things; it attracts and fixes elaſtick Particles, from the great Plenty of unelaſtick Air Particles in its Oyl. Others waſh their Barrels with unquench'd Lime and ſcalding Water.

It's beſt to tun Ale juſt as it comes to a due Fermentation and gets a good Head, for then it has the moſt Strength to clear itſelf in the Cask, and what works over muſt be ſupplied with freſh Beer of the ſame Brewing, and what wrought over may be caſt into the ſmall Beer, or Barm, and the clear left to run through a large *Hippocrates* Sleeve or Bag, made in Shape of a Pyramid, and the Point down, with a Hoop at the Top, hanging over a Tub, and if there is much cleanſing a Barrel of Beer may be got in a large Brewing. It's an Error to tun Beer as it cools, or begins to come, and ſo is it to let it ſtand longer, till it be more ripe, for its Spirits exhale, it weakens, and becomes unfit for long keeping.

When

When we have tunn'd up our Ale or Beer, we muſt have a proper Place to ſet it in, that may preſerve it, and carry it thither whilſt it works in the Cask, for if it be ſtirr'd after its ſet, and not drawn off into a clean Barrel, its in Danger to turn firſt flat, then ſtale, ſour, and become Aliger. The beſt Place to keep, clear and preſerve it from Light, Sun, Heat, Weather, Thunder and Lightening, is a cool Cellar under Ground, where little or no Light, but eſpecially heat, comes, for all Light and Heat rarify the Air in the Cellar, and the Air contain'd in the Cask and Liquor, will ſtill exert its Conatus, to unbend and expand itſelf, in Proportion and Equality to the external Air, whereby the airy Particles in the Sediment will ſwell in their Increaſe and Bulk, and Decreaſe in their ſpecifick Gravity, and move the Fæces, raiſe them up, and make the Ale turbid, or muddy, and it becomes ſooner dead or ſour. That the Air in the Cask and Ale keeps an Equilibrium with the external Air, is thus proved: In a Froſt, or when the Gravity of the Air is increaſed, Beer is very clear

clear and tranſparent, but when the Spring of the Air is weaken'd, broke, or more rarified, the Beer loſes its Tranſparency, and becomes thick or muddy. —— It's alſo neceſſary, eſpecially in Towns, that the Cellar be backward from the Street, that the Motion and Shaking of the Earth, by Coaches, Waggons, Carts, Drays and Carrs, ſhake not your Ale and raiſe its Mother, which hinder its Tranſparency and Fineneſs, and ſoon ſour it.

If Ale be tunn'd up into a new or unſeaſon'd Cask, it drinks in the Spirit from the Mother or Dregs, and depauperates the Liquor, and it's ever after flat or vapid, and dies, or ſours ſoon after. On the contrary, if new Ale be tunn'd up in a Cask, out of which Brandy or Wine was lately drawn, the Spirit will imbibe the Spirit from the Cask to itſelf, and be much ſtronger, but it will have the Flavour of the former Liquor, which perhaps may not be ſo agreeable to every Palate.

The Time for the right and full Fermentation of Ale differs according to the ſundry Seaſons, Climates, or Places,

as

as well as Grain, Strength, or Quantity of the Liquor; but the finiſhing of the Action may be underſtood from the Phænomena in the laſt Chapter; for when the cruſty Scurf begins to fall down, and the Violence of the inteſtine Motion to abate, the Ale muſt be tunned up, or it loſes of its Spirit and Strength.

CHAP. VII.

Of Reſtoring decay'd Ale or Beer.

WHEN the Briskneſs and Livelineſs of Malt-Liquors in the Cask fails, and they begin to turn faint, deadiſh, or vapid, let them be drawn off and bottled up. The beſt Method of bottling is, take clear Water, and into each Quart of it put half a Pound of clean Sugar, boil them gently, and ſcum it, and add a few Cloves, or Cinnamon and Mace, let it cool, then barm it and work it well, ſcum it

it again, and while this is in a ſmiling Condition, put three Spoonfuls of it into every Bottle, then fill them up with Beer and cork them well, or put a few Cryſtals of Tartar into each Bottle; ſome Eſſence, or eſſential Spirit of Barley or Wine do the ſame Thing; or in Want of all theſe put in a little Loaf-Sugar, or four or five Raiſins bruiſed, or a few Grains of Barley bruiſed.

If you want to have your ordinary Beer flower in the Cup, boyl a little Wheat-Bran in its Wort, or if bottled, put in ſome Grains of Wheat or Barley, or Raiſins, or a Bit of Loaf-Sugar, *&c.* in every Bottle; or, would you have your Beer keep better, add a little Wheat to the Malt; it enriches the Wort and adds Spirit to the Liquor.

If Ale be drawn off either for drinking or bottling, whilſt the barmy Cruſt is falling down, it's thick, muddy and unpleaſant; for as the Cruſt falls down it clarifies the Liquor, for it attracts the groſſer Parts to itſelf, and ſo clears and fines it; or if the Ale be drawn off preſently after the Barm is fallen down it's flat, weaker, and more diſagreeable

ſo

ſo during the Fermentation: The ſpiritous Parts of the Liquor being broke ſmall, by the Action, it riſes up and is entangled in the cruſty Scurf, which, after it precipitates to the Bottom, the Ale begins to work, or feed upon its own Dreg, or Mother, it reimbibes the Spirit it had thrown off and up into the Barm, and leaves the laſt depauperated of its entangled Spirits; when the Ale has reabſorbed this Spirit, it becomes fine, ſparkling, tranſparent, and ſpiritous; and this is what we mean when we ſay, it's ripe; but a new or unſeaſoned Cask drinks in thoſe ſame Spirits, which the Liquor ſhould have back again.

There's another Thing which prevents or diminiſhes the Spirituouſneſs of the Liquor, in Proportion to the Quantity and Goodneſs of the Malt, and that is, when either the Malt is maſh'd with boiling Water, which ſeems not ſo agreeable to Reaſon, ſince it's in Danger to ſcald the Malt, and make it run into hard cruſty Clods or Lumps, as tho' it were burnt, and ſo prevent its ſending forth and communicating its full Virtue to the Liquor. It's certain

that Water which has ſtood cloſe covered, ſo as no Steam get out, either in or after boiling, till one can ſee his Face in it is more ſuitable, ſeeing it imbibes and diſſolves the whole mealy Part of the Grain, and leaves only the courſe Earth and dry chaffy Husks; or when the Water is too much boiled, or boiled in an open Copper or Furnace, for then its finer Parts exhale, and its whole Mixture of Earth and other heterogene Bodies remain, which greatly indiſpoſe it for fully impregnating and diſſolving the oyly and ſpirituous Parts of the Malt. Beſides it's the Nature of boiling Water to criſp and corrugate, flexible ſoft Bodies; but diſſolves what's diſſolvable or neceſſary in the Grain.

There's nothing more hurtful to Ale than Thunder and Lightening. The Reaſons whereof are, 1. the Rarefaction of the Air at that Time, for the Air contain'd in the Liquor will ſtill be in *Æquilibrio* with the external Air, in Gravity or Levity, and this Rarefaction of the contain'd Air makes the Liquor thick and muddy, from the riſing up and Mixture of its Dregs with it. 2.

From

From the great Quantity of Sulphur mix'd with the Air, which is the true Cauſe of Thunder; for before it begins to thunder, one or more Places of the Heaven is cover'd with white Clouds, and the Sun ſhining among them, or upon them, they like Glaſſes reflect back the Heat upon our Earth; ſuppoſe we ſee not the Sun, this ſultry Heat rarifies the Sulphur on the Earth's Surface, and ſets it a mounting up into the Air, in great Quantity, where its Particles from their Simularity attract one another, and thoſe Clouds being as ſo many burning Glaſſes, intercept, collect, and reflect the Heat upon the Sulphur, and ſet it on Fire, and either its Mixture with Nitre in the Air, or its Nearneſs to the Water, Hail, or Snow in the Clouds, cauſe it to make that terrible Exploſion and ſhocking Noiſe, as if the Sulphur be in very great Quantity, and thoſe large Particles near to one another; the Force of the Exploſion, darts them downward in the Shape of a Ball of Fire, which is what's call'd a Thunder-Bolt. When much Sulphur has aſcended the pre-

ceding Day, its inteſtine Motion and the Occurſions and Colliſions of its Parts againſt one another ſet it on Fire, and produce Lightenings. The ſudden Rarefaction of the Air by the Exploſion, makes the watry Matter fall together in larger Parcels than ſuch a weakened State of Air can bear up any longer, therefore does it pour down in great Speats of Rain or Hail; but the more rarified the Air is, the ſuddener and greater will the Drops be, and ſo much ſooner will the Shower be over; hence the warmeſt Climates muſt have moſt Thunder, their Thunder moſt terrible, and their Rain not like Drops but little Spoonfuls. When the Clouds have thus eaſed themſelves of their Load, their Conſiſtence is too thin to act the Part of a Mirrour, therefore the ſultry Heat ceaſes, and the Air turns cooler, and has a refreſhing Breeze. 3. This Rarefaction of the Air weakens its Elaſticity. 4. The tremulous Motion of the Earth and Air ſhakes the Veſſel, raiſes up the Mother and mixes it with the Ale; and turns it firſt thick and vapid then ſour, and aliger. Some preten-

t

to preſerve their Ale by laying a Bar of Iron over the Cask, or putting ſome Pieces of Iron in it; but whatever is in this, yet keeping the Barrel cloſe ſtopt, and ſhut up in a deep, dark, cool Cellar is the ſurer Remedy. But the beſt of all would be either to put in a little Alkalious Salt, or dip a thick Canvas Cloath in a ſtrong Brine, and wrap round or lay over the Cask, 1. becauſe the Alkalious Salts breed Air, as Acids abſorb it; 2. becauſe all Salts attract and imbibe Sulphur. Sulphur diminiſhes or fixes the Air's Elaſticity by the ſtrong Attraction of its Particles.

Another Thing I cannot paſs over under this Head, *i. e.* the Practice of ſome Publick-Houſes, who put Lime in their Ale, which fills it with fiery Particles, and alkalious Salts, which raiſe a great Thirſt in the Drinkers, and cauſes them both to drink more, oftener and longer than they would: For the Lime having undergone the Fire, the ſulphureous and igneous elaſtick Particles are fixt in it, at the ſeveral attracting and repelling Diſtances, they happened to be at when

the Lime was hot, and they in a moſt active, attractive and repelling State; but when the Lime is put into the Wort or Ale its diſſolved, and the Sulphur and Fire ſet at Liberty, and influenced and agitated by each others Attraction or Repulſion, which raiſes that great Ebullition from the Action and Reaction of theſe Particles, and this Ebullition continues till ſome of the elaſtick Particles are fix'd by the Sulphur, and the reſt got out of the Bounds of its Attraction. If the frequent Drinkers of this limed Ale happen to have the ſaline Parts of their Blood too naked, or volatile, or their Juices too much diſſolved, or if an alkalious Acrimony prevail, their Tipple cannot fail to be fatal to them. Another Trick, of ſome Brewers, is to put in with their Hops and boil *Coculus Indiæ*; it's a Berry uſed by Fiſhers, mix'd with Paſte, to intoxicate the Fiſh, ſo as they may be taken out of the Water with one's Hand: It's of the Nature of Corn-Poppy-Seeds, Hemlock, Henbane or Nightſhade; all of a narcotick and poiſonous Nature: It has much volatile

Salt

Salt and more Oil, and has the Effects of Opium or Hemlock: An Ounce of it put to a bag of Malt affords as much Ale as a Bag and near a half, becauſe of its volatile Salt: Its much Oyl and earthy Parts carry down the Fæces of the Liquor and make it exceeding fine. But if this Ale be drunk before it has ſtood ſome Months, woe to its Drinkers, which I have good Reaſon to ſay, for I once drank but half a Pint of it in a Forenoon, and it gave me twenty four Vomits and fifty Stools that Day, which ſo weaken'd me that I was confined to my Room ſome Days after. The Antidote is, whatever reſtores the impair'd elaſtick Tone of the Fibres, and removes the too great Fluidity of the Blood, ſuch are Juice of Lemons, Spirit of Sulphur or Vitrol, &c. This Ale is very narcotick, and muſt therefore exert its dire Effects upon the Brain, ſtupify the Head and Senſes, rarify the Blood, diſtend and relax the Solids, and muſt therefore be highly pernicious to People of a lax and weak Habit, and to ſuch with whom Opiats and Hemlock diſagree. Others boil Broom in their Wort, but

this

this is the moſt harmleſs Trick they can play, with their Liquor, for tho' it may occaſion a Head-ach, and ſooner fuddle, yet it's a great diuretick, it waſhes away ſandy, gravelly, mucous, and ſerous Matter, both by Urine and Stool. I could expoſe ſeveral more of thoſe Frauds uſed by Brewers (which have given many People a Diſlike of Malt-Liquors) but I hope the Detection of the dangerous Conſequences of Lime and *Coculus Indiæ*, will make ſome of them more cautious for the future.

When Ale begins to flatten or decay, *i. e.* when its Spirits are either entangled in its Fæces, or drunk up by the Cask, or exhal'd, ſome recover it by caſting in a ſmall Bag of tender Ears of Wheat or Barley, or ſome Raiſins, but Aſhes made of Barley Straw, or ſome Handfuls of Beech Aſhes, put into a Bag, and let down into the Liquor without ſtirring it, are much better. If it be but a little flatten'd, put a Handful of Wheat into the Cask, or ſome *Glauber's* Salt, or two or three

whole

whole Eggs : But the beſt Way is to bottle it off, as directed before.

If Ale after it's bottled begin to work, and throw out the Corks, or ſplit the Bottles, its certain it was bottled before it was ripe, or the Air is ſo rarify'd, that the undiquaqual Preſſure of the Air contained in the Bottles, endeavouring to unbend itſelf, and come to an Æquilibrium with the external Air, breaks the Bottles to Pieces, if the Corks be ſo faſt that it cannot thruſt them up. The Method in this Caſe is, in Summer or Spring, when you bottle Ale ſet the Corks only looſe upon the Bottles, till you ſee whether it begins to fret or ferment in them, and when that's over drive them in, but if it begin to work again, looſen the Corks, and lay them ſoftly on, that it may throw them off if it ferment, or ſet the Bottles in cold Water a Day or two, or throw cold Water twice or thrice upon them, or take out the Corks and burn ſome Brimſtone Matches under your Bottle-Racks ; and this will lay its Fury at once.

If

If Ale or Beer become thick and muddy, ſo as to be undrinkable, caſt into it ſome fix'd Nitre, or ſome *Glauber*'s Salt, or the Oyl, or Quinteſſence of Barley, Wine, or Wheat, or ſome Whites of Eggs made into Balls with a little Flour, theſe ſeed and preſerve the Liquor wonderfully, eſpecially if you add ſome Iſinglaſs to it, or if at tunning you add to the Liquor ſome inflammable Spirit, it clears and ſtrengthens it to ſuch a Degree, both of Goodneſs and Duration, that it comes up to, if not exceeds, double Beer, and may therefore be call'd Beer-royal.

If Ale has loſt its natural Taſte or Reliſh, put into the Veſſel with it ſome Irris or Orrice Root, or ſome Bay Leaves, or Origanum, or Ginger, or Rosemary, but the Liquor will taſte of theſe, as well as recover its natural Taſte.

If Ale or Beer become rancid, or very ſtale, or ſouriſh, it's eaſily recovered by opening the Cask, and caſting in the groſs Powder of any earthy Alkali, which will abſorb, or ſheath up, or blunt the Acidity of the Liquor. Powdered Chalk put in makes it drinkable

ble in a Day or two, or Powders of burnt Egg-ſhells, Oyſter-ſhells, Tortoiſe-ſhell, Crabs-Eyes or Claws, Coral, or Marle, all anſwer the ſame Intention of abſorbing or ſheathing the Acrimony, they turn the Liquor ſweet, and of a natural Taſte; or if it be not much changed, a Handful of Wheat, or *Glauber's* Salt, or fix'd Nitre, put in a Bag and let down into the Liquor, both ſweeten, ſtrengthen, and preſerve it.

If Ale or Beer be ropy, take a coarſe Linnen Cloath, tie it before the Bore of the Spiggot when your Caſk is broach'd, and draw off your Liquor into a clean dry Caſk, and put to it five or ſix Ounces of powder'd Allom, ſhake all well together, then let them ſtand, the Beer will be fin'd down, become clear and pleaſant, and loſe its Ropyneſs.

CHAP.

CHAP. VIII.

Of the Uſes of the Grains, and Barm.

BARLEY is ſo uſeful a Grain, when made into Malt, that not the leaſt, and ſeemingly moſt excrementitious Part of it is uſeleſs, or need be waſted; for the inſipid chaffy Husks and Grains, when all is drawn out of them that Fermentation and warm Water can diſſolve or extract, are ſtill uſeful both for Man and Beaſt; for let a Man waſh the dirtieſt Hands or Feet with them, they make them exceeding white and beautiful; wrinkled Hands rubb'd with them turn ſmooth and ſleek beyond what any artificial Waſh can make them. Grains wonderfully fatten Horſes and Hogs, they looſen a Horſe's Body, make his Skin look ſleek, and if given him ſome Hours after a Journey, they refreſh him wonderfully they increaſe Milk in Cows. If

convuls'd Member be wrapt up in them warm, they relax it much; they eaſe Pain if apply'd in the Form of a Poultis.

The Barm on the Top is a great Number of ſubtile, ſpiritous Particles, wrapt up in a viſcid, light Body: It's the Flower of Ale, is criſp, porous, rare, and fæculent, ſwims at Top, and after the Drink is fermented and ſettled, it condenſes gradually, ſubſides, and gets to the Bottom; and if the Drink be ſhaken or moved, or its contain'd Air rarified, the Subtility, Fineneſs, and Smallneſs of thoſe ſpiritous Particles, lock'd up in the viſcid Body, which is alſo light, cauſe the Barm to mix with the Ale mount up to the Head, and ſet the Liquor upon the Fret again. This Barm being of ſuch a Nature, when it's applied to our Bodies in Form of a Poultis, the Heat of the Body rarifies, and ſeparates its ſubtile Parts from the viſcid; they penetrate the Skin, and rarify the encloſed, impacted or glutinous Matter, and diſpoſe it to Suppuration and Digeſtion, therefore 'tis reputed a great Drawer, and brings ſome Tumours to a Head, which otherwiſe

could not be broken. On the contrary, if the Humour cauſing the Tumour be yet contain'd in Veſſels which have not loſt their whole elaſtick Tone and Force, and the viſcid Humour yet moveable, a Cataplaſm of Barm and Wormwood Tops apply'd, do ſo rarify the Humour and ſtrengthen the Veſſels, as to make the firſt move in its Canals, mix with the Fluids of the Body, and ſo diſcuſs the Swelling. Some Inſtances whereof I have ſeen of white Swellings on the Knees and Joynts, when Calomel had failed. ——— Barm is of extraordinary Uſe to excite Fermentation in other Liquors, as Wort, which I have accounted for in my firſt Eſſay: And of how ſingular Service it is for Bakers, is known to all; for without it, Wheat-Flour would make the heavieſt Bread of all Grain, and of the hardeſt Digeſtion, and greateſt Prejudice to us: It would quickly make our whole Juices viſcid, and furr the Veſſels with one almoſt inſeparable and immoveable Mucus, only to be attenuated by Ditchers, Threſhers, Porters, Miners, and ſuch like hard Labourers

bourers; but by the Addition of Barm, it makes the moſt rare, porous, digeſtible, palatable, light, and nutritious Bread of any Grain; for the much Air, and ſubtile Spirits, wrapt up in the viſcid Body preſently begin to exert their expanſive and fermentative Force on the Leaven; and when put into the Oven the Air is rarify'd, expands itſelf by the Heat; but it being entangled in two viſcid Bodies, *viz.* that of the Barm, and that of the Dough, its Eſcape is impoſſible, and ſo it keeps the Bread huffed up till it be baked. Barm or Dregs are of good Service to clean and clear brazen Veſſels and Inſtruments, which would be both more difficultly ſcour'd, and with greater Loſs of Subſtance otherwiſe: Barm is excellent to take off Dirt from the Body, and make the Skin ſmooth and clear.—— Barm and Dregs either, of Ale or Wine, afford a Proof and rectify'd Spirit, and the Water left in the Still after Diſtillation, fattens Hogs; the ſame does the undiſtill'd Dregs.

CHAP. IX.

A ſhort and plain Recapitulation of the Virtues, and good and bad Effects of different Malt-Liquors, on different Perſons, as they ſtand in the Vinum Britanicum.

AS to the Nature, Virtues, and Properties of Ale and Beer, to what Conſtitutions, Seaſons and Caſes it's ſuitable, and how it's to be adapted to various Temperaments, we have them diſcourſed of more largely in the *Vinum Britanicum*; where the Author has ſhown, that middling Ale or Beer (of about 36 Gallons in half a Quarter of Malt) made of good Malt, the Wort well boil'd in a cloſe Veſſel or Furnace, (becauſe an open Copper lets the ſofteſt, ſimpleſt, and fineſt Parts of either Water or Wort fly off in long boiling; and thoſe Particles were the fitteſt to help to

to attenuate and diſſolve the Viſcidities or Moleculæ of the Liquor in Fermentation, and keep them at greater Diſtance after, that they may not attract one another too much, to the Prejudice of the Liquor, and Injury of the Drinker) duely fermented, according to the Intention and Conſtitution, (that the eſſential Oyl of the Grain may be broken and reduced to a fine, ſubtile, penetrating Spirit, and the Salt attenuated and diſingaged from their Cohæſions, and the earthy Parts ſeparated and made capable to paſs the ſmall Veſſels, and afford good Nouriſhment, and the diluting watry Parts mix'd through the whole: But weak, thin, lean Conſtitutions cannot bear pale Beer, no more than groſs, corpulent, unweildy Habits can ſafely agree with a conſtant Courſe (of mild Ale) and cask'd up in clean ſeaſon'd Veſſels, in a dark, cool Cellar, and let ſtand till it be fine and ripe; and that both Malt and Liquor be free from any burnt, harſh, muſty, or other diſagreeable Taſte, and the Beer neither vapid, ſour, turbid, ropy, nor thick; but freſh, fine, ſparkling, of a winey

Taſte and juſt Age, and that it be made from Barley eſpecially; Wheat-Liquor being too nutritious, and apt to encourage Corpulency; Oats being too drying and detergent; Beans and Peas being too tenacious, thick, viſcid, and ready to diſpoſe the Body of the idle, ſtudious and ſedentary to Cachexies, Obſtructions, Leucophlegmatias, and many other chronic Diſeaſes; but ſuch Ale is very ſuitable to the more laborious, ſound, ſtrong and healthy. When theſe Malt-Liquors are prepar'd for keeping, they muſt both have a good Body, and be well hopp'd, for no Succedaneum can ſupply Hops, either for keeping, clarifying, reliſhing or preſerving Beer, but ſuch Conſtitutions as diſagree with them, would do wiſely to uſe other Vegetables in their Room; but they muſt brew a leſs Quantity and keep it a ſhorter Time; and by this they ſuffer no great Loſs, being they are generally weak, lean Bodies hectically diſpoſed, and therefore unhopp'd and ſoft Ale agrees beſt with them, becauſe it ſupplies and nouriſhes moſt. But Hops rarely fail to agree well with

Taſte,

Taſte, Stomach, and Body of the pituitous and corpulent, for that Beer is more ſtale, ſmart, harſh, bitter, clear, and fine; has its Salt more naked, its Oyl more attenuated, its Earth in ſmaller Particles and leſs attractive, and therefore it opens and deterges more. But in geneneral ſuch a Beer as I mentioned at firſt, *viz.* a middling, well-boil'd, fermented, depurated, clear'd and ripen'd Liquor, may perhaps challenge the Precedency of all other artificial Vehicles, for cooling, moiſtening, and cleanſing the Stomach, from the ſaline, acrid, ſpumous, or viſcid Mucus, which lines its Inſide, and leaves inſtead thereof an oily, lubricating, healing, balſamick, ſheathing and agreeable Litus. Such a Liquor refreſhes, comforts, revives, quenches Thirſt, cleanſes the Mouths and Sides of the Lacteals from Slime and Mucus, cools and thins the Blood, removes the Heat and Contraction of the criſped Fibres and Solids, affords a rich nutritious Chyle to repair the Body's Waſte; it ſcours all the Veſſels, Paſſages and Glands, and cauſes a free and due Circulation, and regular Evacuation,

ation, unleſs there is ſuch a Weakneſs, Flaccidity, Flatulency, Rawneſs and Acidity in the Stomach and Inteſtines, as produce Loathings, Belchings, Vomitings, Looſeneſs, cholical Pains and Gripes, and then it muſt be left off till theſe be removed; for unleſs it is ſtrongly and judiciouſly medicated with proper Ingredients, it encreaſes them. Its Uſe muſt alſo be laid aſide in inflammatory Caſes, as Pleuriſies, Squinzies, Phrenzies, Inflammations of Stomach, Bowels, or other Viſcera; and in Dropſies, Cachexies, wandring Pains, Catarrhs, and in ſuch Diſeaſes which ariſe either from too great a Laxneſs, or Irritation of the Solids, or where the Blood abounds with Salts, or is too viſcid, ſerous or grumous.

CHAP.

CHAP. X.

Of the more general Uſes of Malt, and Malt-Liquors.

BUT beſides the ſalubrious Intentions of good Malt-Liquors relating to the Bodies of particular Perſons, there are ſeveral general, and very excellent Deſigns anſwer'd by them, which ſhould alſo raiſe our Eſteem of them, and recommend their moderate and ſeaſonable Uſe to us, notwithſtanding the Railery of ſome, and Ignorance and ſlaviſh Belief of others: As 1. The great Revenue which the Duty laid upon Malt and Malt-Liquors brings yearly to the Crown; and this anſwers three valuable Intentions. 1. It maintains the Dignity and Safety of the Crown. 2. It eaſes the Subject of other heavy Taxes, which muſt have been impoſed, were this removed. 3. It raiſes the Price of the Commodity, and puts ſome Check to its

its exceſſive Uſe, or Abuſe, which in this fuddling Age, Men would be apt to run into, could they have it at as low Rates as formerly. And I may add, 4thly, this great Duty obliges the Brewers to lower its Body, which is a great Advantage to the Drinker, and prevents many of the ſudden and diſmal Effects we ſhould daily hear of, were it made very ſtrong, conſidering the large Quantities ſome Men daily ſwill down. But,

2dly, Theſe Revenues greatly ſtrengthen the Crown, and enable it with leſs, or more inſenſible Oppreſſion of the Subject, to keep up a ſtanding military Force, both by Sea and Land, for our Security and Preſervation, both from foreign Invaſions, and inteſtine Ruptures and Inſurrections; hereby our Peace, Rights and Liberties are maintain'd, and our foreign Trade preſerv'd in Time of War. ——— 3dly, A great Multitude of Families and Perſons are provided for and maintain'd by their Service in gathering and bringing in this Revenue into the Exchequer; as Commiſſioners, and their Deputies, Servants and Families,

lies, Collectors and their Servants and Families, Surveyors, Excisemen, Clerks, Supernumeraries, old, decay'd or disabled Officers of Excise, who have serv'd above seven Years, and their Families; all which, in *England*, are above 10000. ——— 4thly, A great Number of Men, their Wives, Children and Servants have their Provision, and Fortunes from preparing those Liquors; as Maltsters, Brewers, Inn-keepers and Victuallers, with their numerous Families of Children and Servants, and many Poor which are often kept, supply'd, or reliev'd by them; these Men may deservedly be consider'd as so many Pillars of our Nation and Supporters of our Government. —— 5thly, The Use of this Liquor is a material Encouragement of Country Farmers; for what greater or surer Article have they to depend upon, for raising ready Money to pay their Rents, than Barley? Or how can they so conveniently maintain their Families and Labourers, without Ale or Beer? ——— 6thly, By this Article, Land is let at greater Rents, than could otherwise be expected or afforded; so

that

that the Conſumption of Malt-Liquors helps to fill the Pockets of Nobility and Gentry. ——— 7thly, Encloſing, dunging, cultivating and tilling of Ground, and reaping of the Corn, raiſes Employment, Help, and Relief to many poor People. —— 8thly, Pot-Companionry ſeems to be the Cement of Society and Occaſion of Trade, few Things beget a more firm and laſting Love amongſt Men, than frequent Company, Converſation and Freedom, and this they find moſt conveniently kept at the Inn, Tavern or Mug-Houſe; moſt Bargains and Buſineſs are tranſacted over a Pot or Glaſs; moſt Diverſions are intermixed or concluded with a Pot or Glaſs; moſt Welcomes and Farewels amongſt Friends, Acquaintances, or Brother-Tradeſmen, are at the Alehouſe or Tavern; moſt Meetings for Conſultation, Petition or Deliberation, are at the Sign of ——. Young Men and Maids, who want Fortunes, are often provided for by the next Relations offering up themſelves Sacrifices to *Bacchus*, *Ceres* and *Venus*. Needy and helpleſs Orphans, ſometimes riſe above the Frowns of

For-

Fortune and Scorn of the Opulent, by the Sot's having deſtroy'd his Conſtitution, and in his own, that of his Children, which makes both ſhort liv'd, and the Eſtate or Means falls to others, who wanted and deſerved them better, and ſometimes know how to uſe them diſcreetly to good Purpoſes. The Buſineſs of Tradeſmen is often better'd, becauſe many of their Brethren, Journeymen, or Apprentices, love Drink and Idleneſs better than hard Labour, therefore go into the Army, and this makes fewer Tradeſmen than would otherwiſe be, had they ſtay'd at Home and follow'd their Buſineſs. ——— The Beggar who has wander'd all Day, cold and weary, and often wet and hungry, when he comes to his Quarters drinks what he has begg'd, and forgets his Poverty, and the Sorrow and Toil of the paſt Day. The Uſe of Malt-Liquors promotes the Circulation of Money, *&c.* ſo that the publick Advantages ariſing to all Ranks and Profeſſions of Men, from the Uſe of Malt-Liquor, downweigh the private Miſchiefs which happen to a few, from an injudicious

unſeaſonable, or exceſſive Uſe of them. It's a ſtrange Storm that brings Gain to none. For this Abuſe of Sir *John Barley-corn* increaſes the Lawyer's Gain, the Phyſician's Viſits, Patients Fees, and the Number of the Surgeon's Demands, and the Length of the Apothecary's Bills. Gentlemen of the black Robe have a Part of their Drudgery in viſiting ſuch Sick as have contracted their Diſtempers by Luxury and Intemperance: Biſhops-Court-Gentlemen, Goldſmiths, Mercers, Wool-manufacturers, Luteſtring-Gentlemen, Undertakers, Glovers, Sextons, Ringers, *&c.* get a Part of their Bread and Buſineſs from too much Freedom and Uſe of the Barley's Product.

To all theſe publick and particular Advantages of Malt-Liquor, might be added ſeveral other petty Services: As 1. They ſerve as a Baſis or Vehicle for medicated Ale; for Medicines given thus in Diet-Drinks, are taken eaſier and offend the Stomach leſs; they are not only drunk with leſs Loathing and Reluctancy, but rarely invert the Stomach's Order and Action, it retains them

them and faithfully ſends them off the right Way in due Time; and many Stomachs can bear Medicines in no other Form. 2. Sundry Kinds of Food and Sauces are prepar'd with Ale or Beer, but this I leave to Houſewives and Cooks. 3. A Lotion of pale Ale makes the Skin ſmooth, fine and beautiful. 4. Pale Ale given to Poultry to drink, inſtead of Water, makes them very fat. 5. If ſtrong Ale be boil'd to a thick Extract it's admirable in old Aches, Pains, Laxations, or Strains; or a Plaiſter made of it heals up old ſuperficial Ulcers. 6. Let the weary Traveller waſh his Feet with Ale a little warm'd, it's a preſent Cure of his Wearineſs, Pain and Aching of his Feet. In ſeveral other Caſes Ale is of good Service; but I have ſaid enough to recommend its Uſefulneſs, and expoſe the Danger of its indiſcreet and exceſſive Uſe.

CHAP. XI.

An Appendix concerning Alegar and Malt-Spirits.

ALEGER derives its Name from Ale, as Vinegar from *Vinum*, the firſt is generally weaker than the laſt, but this is not from the Nature of the Grain, but the Weakneſs of the Liquor, for the eſſential Salt of both is the ſame, and if the Ale be very ſtrong, the Aliger is every whit as good as Vinegar: And as Claret and white Wine afford Vinegars of a different Colour, ſo do very brown or reddiſh Ale, and very pale, give their Alegar the ſame Colour. ——— Alegar is an acid, volatile, penetrating Liquor, call'd by the Antients Liquid Tartar, and is the Volatilization of the acid Salt of the Ale, and its Union with the Spirit; or the Union of the fine, ſubtile, volatile Sulphur or Oyl of the Grain with its Salt,

for

for if the Spirits exhale or be loſt, the World cannot make Alegar of it, but it's a thick vapid Stuff.

The chief Cauſes of the Degeneracy of Ale into Alegar are, 1. The Liquors ſtanding in too warm a Place; 2. The free Acceſs of too much Light, or rarified Air to the Cask; 3. Its being often ſhaken or mov'd; 4. Any Fæces or Dregs of Vinegar or Alegar in the Cask; 5. If the Cask has been formerly uſed to keep Vinegar; 6. The frequent Mixture of Ale with it's own Dregs, or Mother; 7. The Addition of any acid auſtere Roots, Stalks, Leaves, Flowers or Seeds of Plants to the Ale, as Grapes, Raſp-berries, Cherries, &c. 8. The putting in of ſour Leaven; 9. The throwing in of any very ſtrong and pungent Aromaticks, as Pepper, Ginger, Galingal, Zedoary, &c. 1. Hence we ſee how to preſerve our Ale from ſouring; 2. Hence we ſee that the Spirit is not loſt in the Ale, but only united with its Salt; 3. For this Reaſon Vinegar loſes its Inflammability, becauſe its Spirits are fix'd; 4. Becauſe the Spirits are fixed, in Diſtillation the Phlegm muſt come over

the Helm firſt, the contrary of which happens in diſtilling Wine or Ale.

I ſhould here give the mechanical Cauſes of Volatility, and how a ſpiritous volatile Liquor turns fix'd without Loſs of its Spirit, and how this fix'd Liquor is turn'd acid; but this would be rather a chymical Diſcourſe than a practical Eſſay, therefore I ſhall content myſelf with giving a ſhort Account of the Uſes and Effects of Alegar or Vinegar.

Vinegar uſed moderately is a great cooler; for it penetrates and fixes the more ſubtile Parts of the Blood, checks its rapid Motion, and ſo calms the hurry and impetuous Motion of the Juices. It's a great Incider, and is therefore highly ſerviceable in acute Diſeaſes, hot Fevers, Plague, ſmall Pox, and Meaſles, or where the Breaſt is ſtuff'd with Tough Phlegm of difficult Expectoration. It and Water given in Fevers where Sweat is indicated, is perhaps one of the greateſt Sudorificks in the World. It's a wonderful Reſiſter of Drunkenneſs; for let a Man ſottiſhly drunk, drink three or four Spoonfuls of it,

it, it will presently bring him to himself for a Time. It's a strong Resister of Putrefaction; for take a Joint of Meat and wrap it up in a Cloth dipt in Vinegar, it will keep fresh a Week in the midst of Summer; this is the Reason it preserves Pickles and Shell-Fish so many Months. It restores the lax or decay'd Tone of the Nerves, and therefore is highly serviceable to the sleepy, lethargick, hysterick, and such as have Nausea's and Vomitings. It's of special Service in an Overflowing and Redundancy of the Bile, which is a great Alcali. It's also a good Antidote after too large a Dose of Opium, especially if join'd with Spirit of Vitriol or Lemon-Juice. It strengthens a weak Stomach much by its Pungency and Tartness, whereby it corrugates and draws up the debile and pall'd muscular Fibres, and makes them act with invigorated Force: On this Account it promotes Digestion, gives a grateful acid Taste to Meat, provokes the Glands, Mouth, Gullet and Stomach to spue out their glandular Juice more plentifully, and thinner, which wonderfully dilutes and attenuates the

the Food, and facilitates the Stomach's Work. It's good againſt Hæmorrhages, for it both draws up the Veſſel and thickens the Blood. A Linnen Cloth three or four Fold dipt in Alegar and Water, and applied round the privy Parts of a Man, or the Breaſts of a Woman, ſtops bleeding at the Noſe like a Charm. A Linnen Cloth dipt in Vinegar and Water, and wet again as it dries, ſpeedily cures thoſe ſudden Inflammations call'd the *Roſe*. A Cloth dipt in Vinegar and Water and laid to the Throat is good to diſcuſs a Beginning Squinzy. Vinegar plentifully eaten with their Food, moſt effectually reduces corpulent and overgrown Bodies, to their natural and healthy Standard. It's highly ſerviceable to over bulky and flegmatick Perſons, to ſuch as have nauſeating, belching and weak Stomachs; to all ſuch as have too lax and weak Fibres, too fluid or viſcid Fluids, *&c.* But it is no leſs injurious when taken in too large Quantities, for it convulſes the Stomach, pricks the Nerves and cauſes Vomiting; it's not for very meagre and thin People, for it abrades

and

and wears away too quickly the Inſides of their Veſſels: Nor is it ſuitable to thoſe who are afflicted with a troubleſome tickling Cough, for it encreaſes the Irritation; neither ought melancholy Conſtitutions to meddle with it, for all Acids thicken the Blood more and give the Veſſels a greater Contraction. —— A Gargle of Vinegar and Water is good for Heat or Inflammation of the Mouth. It alſo puts back Milk in Women's Breaſts: And Rollers and Bolſters dipt in it and wrapt about fractured and diſlocated Limbs after they are ſet, prevent the great Afflux of Humours to the Part.

Spirits of Malt are the whole Oyl and Salts of the Grain, reduc'd into fine ſubtile and volatile Particles, ſmaller or lighter than the Phlegm or Water wherein they ſwim, when well wrought; Ale or Beer is caſt into a Still, and a Fire put under it, theſe Spirits riſe up firſt and come over the Helm, mixt with ſome Plegm, this is call'd proof Spirit, which is diſtill'd again and goes by the Name of double Proof; a few Diſtillations more will bring it to a rectified Spirit, or Alchol, wholly inflammable.

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ERRATA.

Page 10. Line 4. read *off*. p. 12. l. 14. for *its* read *it*. p. 18. l. 16. f. *bring*, r. *being*. p. 61. l. 1. f. *ſo*, r. *for*. ibid. f. *Fermentation: The*, r. *Fermentation, the*.

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